Nevada Division of Environmental Protection
Bureau of Water Quality Planning

Proposed New Walker Lake Water Quality Standards

Fact Sheet
August 2000

Note
This fact sheet includes changes that have been made since the December 1999 fact sheet. Deletions are shown as ~~strikeouts~~ and additions are shown with a **[** bracket and underline **]**.

Background
Section 303 of the Clean Water Act and 40 CFR 131 give states responsibility for setting, reviewing and revising water quality standards. State of Nevada requirements are contained in Nevada Revised Statutes 445A.425 and 445A.565 and water quality standards for waters of Nevada are found in the Nevada Administrative Code (NAC) 445A.119 through 445A.225. To set water quality standards, water bodies are divided into **reaches** based on land uses and physical and chemical characteristics. **Beneficial uses** for each reach are designated and criteria (or beneficial use standards) to protect those uses are established. **Beneficial Use Standards (BUSs)** are usually derived from USEPA national guidance criteria. If existing water quality is significantly better than the BUS, **requirements to maintain existing higher quality (RMHQs)** may be established in addition to the BUS. Workshops are held to obtain comments on proposed water quality standards from federal, state and local agencies and the general public. After consideration of public comments, the standards are presented at a public hearing to the State Environmental Commission (SEC) for review and adoption. Standards adopted by the SEC are then subject to approval by the USEPA.

There are no existing reaches or beneficial uses for Walker Lake

Summary of New Water Quality Standards

1) Reaches:

It is proposed to establish a reach to include Walker Lake. As there is limited data on parameters such as nitrate, nitrite, total nitrogen and most metals at any locations other than at Sportsman's Beach, the water quality standards proposed will be **applicable only at Sportsman's Beach** and the control point for the lake will be at Sportsman's Beach. Additional chemical sampling, which began in June 1999, will evaluate the spatial variations within the lake. During the next water quality standards review, lake wide standards will be proposed.

2) Beneficial Uses:

The proposed beneficial uses for Walker Lake were established from observations by NDEP and discussions with interested local, state, and federal agencies and interested citizen groups. Observed beneficial uses that are present for Walker Lake include:

- Recreation not involving contact with the water; includes fishing, boating, picnicking, etc.;
- Recreation involving contact with the water; includes swimming, wading, water skiing, wind surfing, etc.;
- Propagation of wildlife; includes birds, migratory birds, and other animals that use the

lake; and,

- Propagation of aquatic life. The fish species include the Tui Chub, the Tahoe Sucker **[** and juvenile **]** and adult Lahontan cutthroat trout. The Lahontan cutthroat trout is not naturally reproducing at this time and therefore all life stages are not included in the beneficial use for aquatic life. However, the adult Lahontan cutthroat is artificially stocked and coldwater standards are proposed to protect the adult trout population

3) Temperature:

It is proposed to establish a temperature beneficial use standard for the protection of aquatic life at ÄT ≤ 2°C maximum allowable increase in temperature at the boundary of an approved mixing zone. This standard will prohibit any current or future point source discharges to the lake from exceeding the lake water by ± 2 ° C. The beneficial use standards for temperature are directly related to specific requirements of the designated aquatic species. RMHQs for specific temperature values will be considered during the next standards review after additional lake water quality data is collected.

4) pH:

The most recent USEPA criteria recommends a pH of 6.5 - 9.0 SU for the protection of aquatic life (USEPA, 1986). Walker Lake data from 1990 through 1998 shows the lake has a high pH and alkalinity at all times ranging from 9.2 to 9.71 from 1990 to 1998. It is proposed to establish a pH BUS of 6.5 - 9.7 SU for the protection of aquatic life.

5) Dissolved Oxygen:

The proposed standard for dissolved oxygen is > 5 mg/l which is the USEPA recommended criteria for coldwater fisheries.

6) Total Suspended Solids (TSS):

The EPA recommended beneficial use criteria for suspended solids is 25 - 80 mg/l. The proposed standard for total suspended solids for Walker Lake is ≤ 25 mg/l for the protection of aquatic life. The suspended solids data collected at Sportsman's Beach shows that 25 mg/l was exceeded only once since 1990.

7) Nitrite:

The proposed standard for nitrite is ≤ 0.06 mg N/l which is the recommended EPA BUS criteria for the protection of aquatic life. Nitrite values were generally at or below detection limit of 0.01 mg/l.

8) Nitrate:

The proposed nitrate standard for Walker Lake ≤ 90 mg N/l which is the recommended EPA BUS criteria for the protection of aquatic life. The nitrate values for Walker Lake were below 0.1 mg N/l from 1990 to 1998.

~~**9) Ammonia:**~~

~~It is proposed to establish the ammonia BUS for Walker Lake consistent with the recommended USEPA total ammonia criteria for the protection of aquatic life. The USEPA criteria is a formula with the criteria varying dependent on the pH of the water; the higher the pH the lower the criteria. This standard does not apply under anoxic conditions in the hypolimnion or immediately following lake turnover.~~

10) Total Inorganic Nitrogen:

Total inorganic nitrogen (TIN) is composed of nitrite (NO_2), nitrate (NO_3) and ammonia (NH_3 +

NH_4). NDEP is proposing a TIN RMHQ instead of total nitrogen (TN) because inorganic nitrogen is a more readily available form of nitrogen for algal use. Walker Lake is nitrogen limited (Horn et al 1994), meaning there is an abundance of phosphorus available for algal use, but the amount of nitrogen available for the algae is limited; therefore the amount of available nitrogen will control the amount of algal growth. The proposed TIN RMHQ is an annual average of ≤0.18 mg N/l and single value ≤ 0.30 mg N/l for the protection of aquatic life.

11) Total Phosphorus:

Total phosphorus values at Sportsman's Beach varied from a low of 0.05 mg/l to a high of 0.94 mg P/l, with an average value from 1990 to 1998 of 0.064 mg/l. Even though nitrogen is the limiting nutrient in Walker Lake NDEP feels that restricting the total amount of available nutrients in the lake will help control excessive algal growth, and limit eutrophication of the lake. The proposed standard for total phosphorus is ≤ 0.82 mg P/l for the protection of aquatic life.

12) Total Dissolved Solids:

The TDS concentration changes primarily in response to the lake surface elevation. The Lahonton cutthroat trout population was at a critical stage when the TDS concentration approached 14,000 mg/l in 1994-5. Since 1995 the fishery in Walker Lake has improved dramatically, and the lake is supporting a healthy population of Lahonton cutthroat trout (Chris Drake, NDOW, personal communication). The proposed BUS for total dissolved solids is ~~≤ 12,000~~ **[** ≤10,000 **]** mg/l, for the protection of aquatic life.

13) Chloride:

The recommended EPA criteria for the propagation of wildlife is 1,500 mg/l. Site specific conditions dictate a higher standard than the recommended criteria because chloride values from 1990 - 1998 at Sportsman's Beach ranged from 2,440 to 3,400 mg/l. The proposed chloride standard for Walker Lake is ≤ 3,200 mg/l for the propagation of wildlife.

14) Arsenic:

The new toxic criteria for arsenic for the propagation of aquatic life is 150 µg/l (USEPA, 1998). Arsenic values at Sportsman's Beach ranged from 889 µg/l to 1,110 µg/l. The proposed standard for arsenic is ≤ 1,050 µg/l to protect for propagation of aquatic life.

15) *Escherichia coli*

Escherichia coli (E. coli) is used to evaluate bacterial contamination of surface waters. The proposed standard is the recommended USEPA criteria for the protection of recreation involving body contact with the water. All *E. coli* data have been below the detection limit of 10/100 ml. The proposed BUS for *E. coli* to protect for recreation involving body contact is a 30 day geometric mean ≤ 126/100 ml with a single value not to exceed 235/100 ml.

Public Workshops:

Wednesday, September 6, 2000
Mineral County Library
1st and A
Hawthorne, Nevada
10:30 to 12:30 pm

Wednesday, September 6, 2000
Lyon County Library
20 Nevin Way
Yerington, Nevada
3:00 to 5:00 pm

for Questions, comments or additional information please contact:

John Heggeness
Telephone : (775) 687-4670 ext. 3093
or
Adele Basham
Telephone: (775) 687-4670 ext. 3102

Nevada Division of Environmental Protection
Bureau of Water Quality Planning
333 W. Nye Lane
Carson City, Nevada 89706

FAX: (775) 687-6396